



Volunteer Lake Assessment Program Individual Lake Reports

EMERSON POND, RINDGE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	528	Max. Depth (m):	5.2	Flushing Rate (yr ⁻¹)	2.4
Surface Area (Ac.):	113	Mean Depth (m):	1.3	P Retention Coef:	0.74
Shore Length (m):	3,900	Volume (m ³):	509,000	Elevation (ft):	1167

TROPHIC CLASSIFICATION

Year	Trophic class
1982	EUTROPHIC
2002	MESOTROPHIC

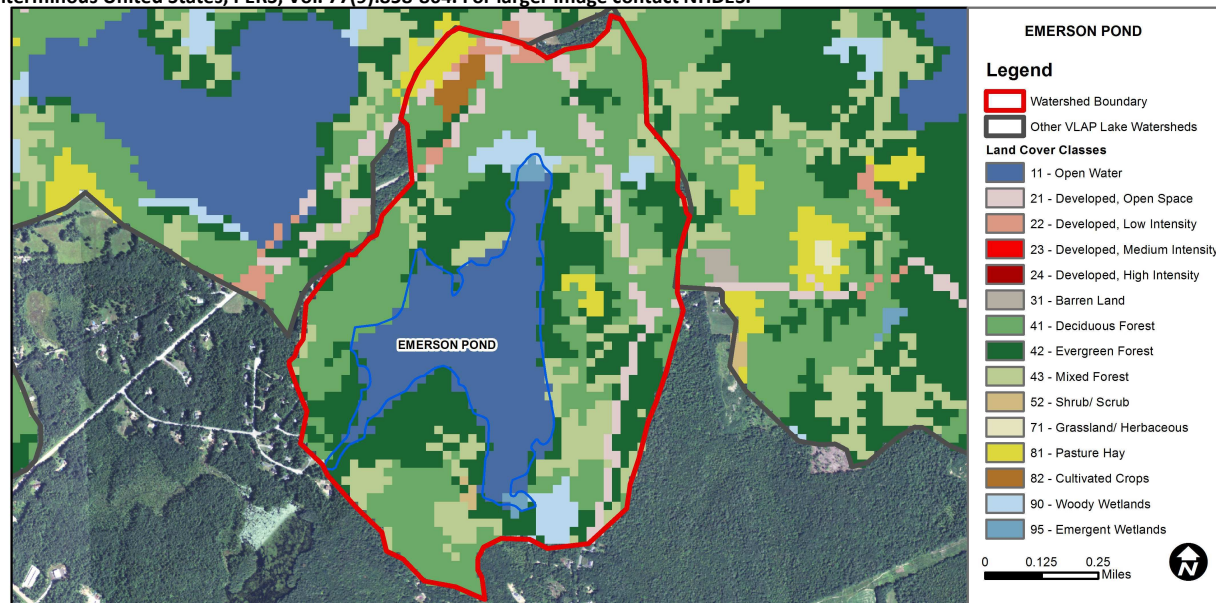
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	The calculated median is from 5 or more samples and is > indicator and the chlorophyll a indicator is exceeded.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen saturation	Cautionary	There are < 10 samples with 1 exceedance of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	The calculated median is from 5 or more samples and is > indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	19.6	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	4.45	Deciduous Forest	32.12	Pasture Hay	1.79
Developed-Low Intensity	0.92	Evergreen Forest	24.13	Cultivated Crops	1.06
Developed-Medium Intensity	0	Mixed Forest	11.61	Woody Wetlands	3.21
Developed-High Intensity	0	Shrub-Scrub	0.23	Emergent Wetlands	0.69



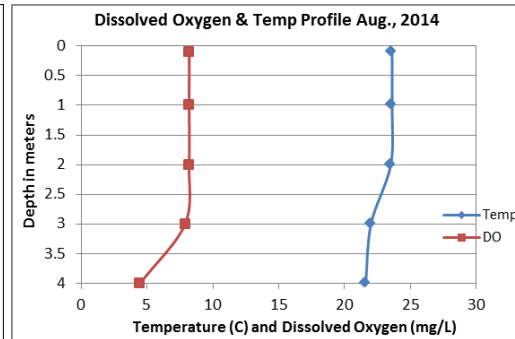
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

EMERSON POND, RINDGE

2014 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels were average and approximately equal to the state median in August. Chlorophyll levels decreased slightly from 2013 and visual inspection of historical data indicates slightly decreasing chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer) and hypolimnetic (lower water layer) conductivity levels were slightly elevated and greater than the state median. Epilimnetic chloride levels were also slightly elevated and greater than the state median indicating winter road salting may be impacting conductivity levels in the pond. Visual inspection of historical data indicates slightly increasing epilimnetic conductivity levels.
- ◆ **E. COLI:** Cathedral and Vaillancourt Beach E. coli levels were much less than the state standard of 88 cts/100 mL for public beaches.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were relatively low in August and less than the state median and remained stable with the 2013 level. Visual inspection of historical data indicates slightly decreasing epilimnetic phosphorus since monitoring began. Hypolimnetic phosphorus was slightly elevated potentially due to the influence of bottom sediments.
- ◆ **TRANSPARENCY:** Transparency was good in August and was the best measured since 2009. Visual inspection of historical data indicates relatively stable transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic and hypolimnetic turbidities were within average ranges for those stations.
- ◆ **PH:** Epilimnetic pH was within the desirable range 6.5-8.0 units, however hypolimnetic pH was less than desirable. Visual inspection of historical data indicates increasing (improving) epilimnetic pH since monitoring began.
- ◆ **RECOMMENDED ACTIONS:** Increase monitoring frequency to once per month during the summer, typically June, July and August, to better assess seasonal and historical water quality trends and decrease variability among data. Conduct spring runoff sampling to assess chloride levels to better understand the impacts of winter road, driveway, and parking lot maintenance on water quality. Keep up the great work!



Station Name	Table 1. 2014 Average Water Quality Data for EMERSON POND									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	3.9	4.75	24	98.3		9	3.15	3.68	1.18	6.64
Hypolimnion				98.2		17			1.70	6.36
Cathedral Beach					4					
Vaillancourt Beach					2					

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L

Chlorophyll-a: 4.58 mg/m³

Conductivity: 40.0 uS/cm

Chloride: 4 mg/L

Total Phosphorus: 12 ug/L

Transparency: 3.2 m

pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: > 230 mg/L (chronic)

E. coli: > 88 cts/100 mL – public beach

E. coli: > 406 cts/100 mL – surface waters

Turbidity: > 10 NTU above natural level

pH: between 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	N/A	Ten consecutive years of data necessary for analysis.	Chlorophyll-a	N/A	Ten consecutive years of data necessary for analysis.
pH (epilimnion)	N/A	Ten consecutive years of data necessary for analysis.	Transparency	N/A	Ten consecutive years of data necessary for analysis.
			Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary for analysis.

